INCH-POUND

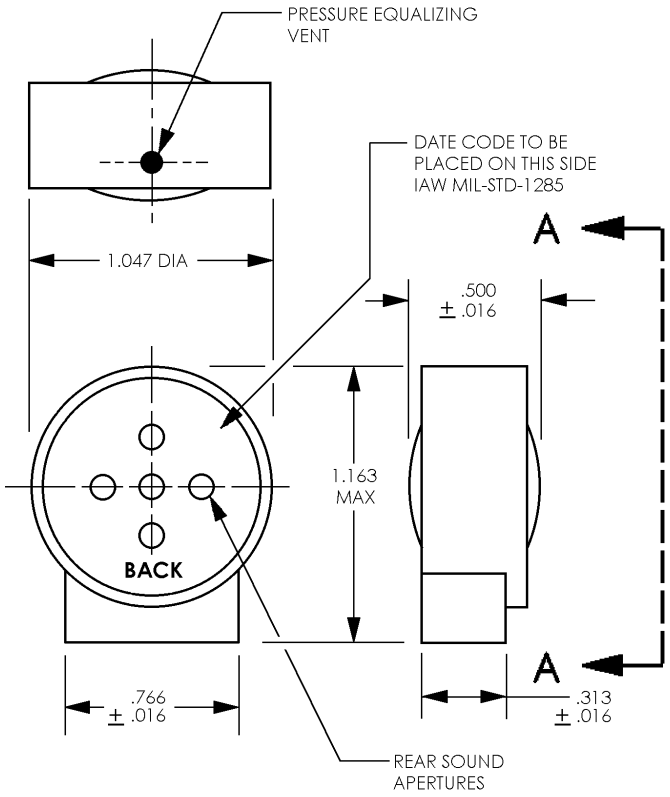
MIL-PRF-26542/4D
16 July 2002
SUPERSEDING
MIL-PRF-26542/4C
30 May 1997

PERFORMANCE SPECIFICATION SHEET

MICROPHONE ELEMENT, M-101/AIC

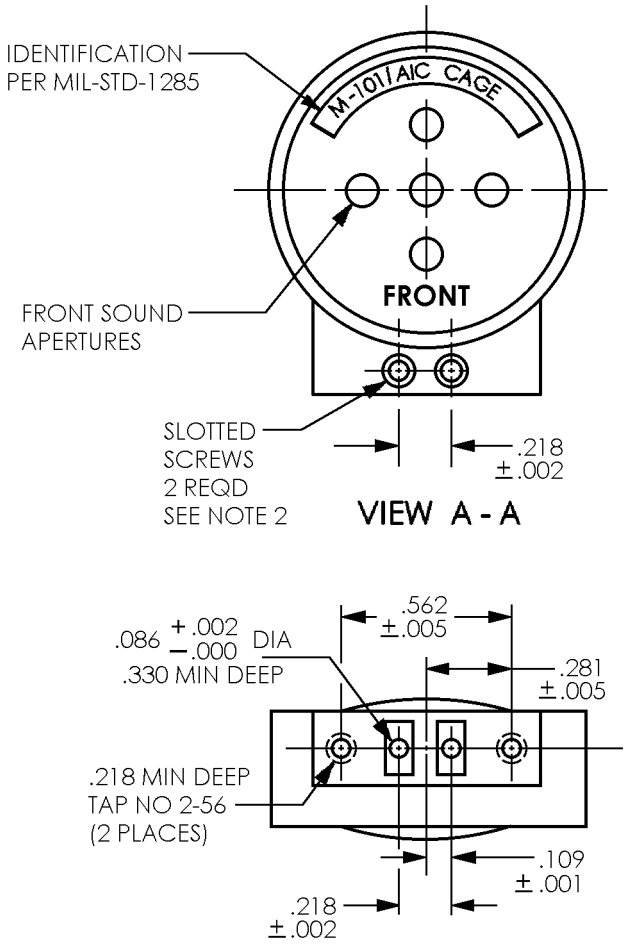
This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-PRF-26542.



Inches	mm
.001	0.03
.002	0.05
.005	0.13
.016	0.41
.086	2.18
.109	2.77
.218	5.54
.281	7.14
.313	7.95
.330	8.38
.500	12.70
.562	14.28
.766	19.46
1.047	26.59
1.163	29.54

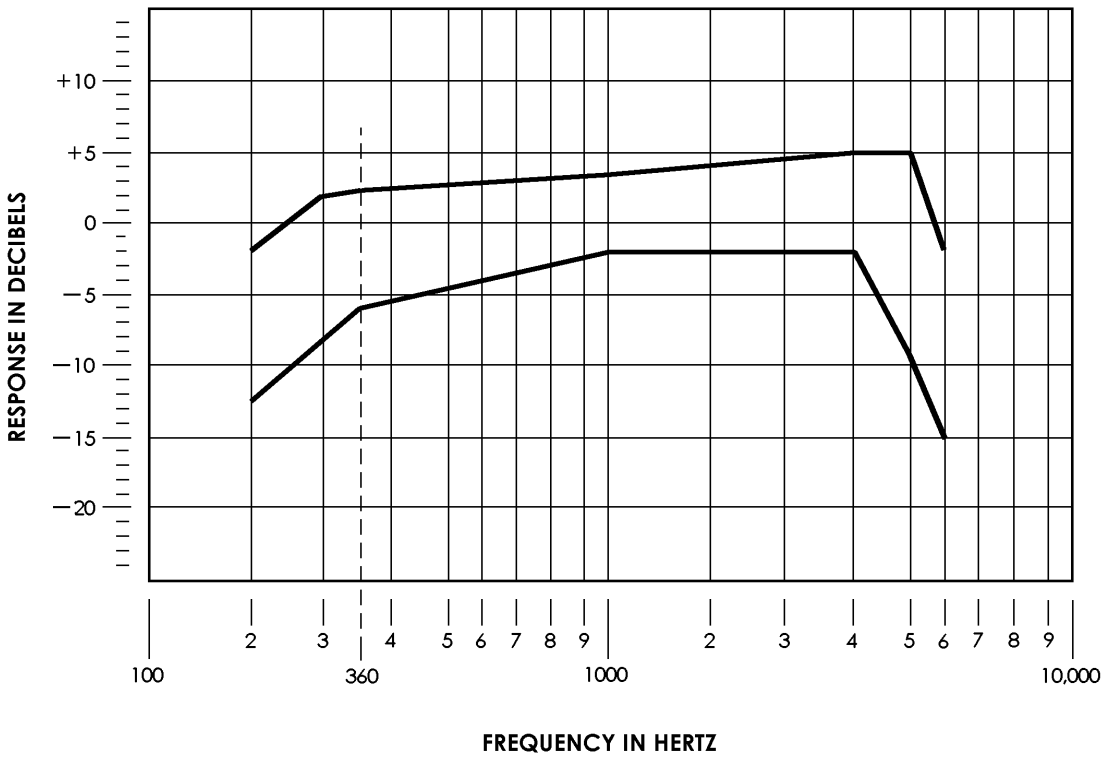
FIGURE 1. Microphone element M-101/AIC.



NOTES:

1. Dimensions are in inches. Unless otherwise specified, tolerances are ±. 015 (0.38 mm).
2. Set-screws shall hold the part securely to the bracket, shall be slotted (for interchangeability of spares among manufacturers and tri-Service applications), and recessed.
3. Dimensions of microphone are intended to provide interface to a variety of tri-Service brackets, including the US Air Force MT-2189 (M100/AIC), as well as various US Army mask brackets.
4. Hole depths shall be as specified in order to provide a secure bracket connection, which does not compromise the mechanical stability of the microphone base.
5. Sound aperture location and configuration are optional, provided that frequency response, environmental and performance requirements are met as specified.

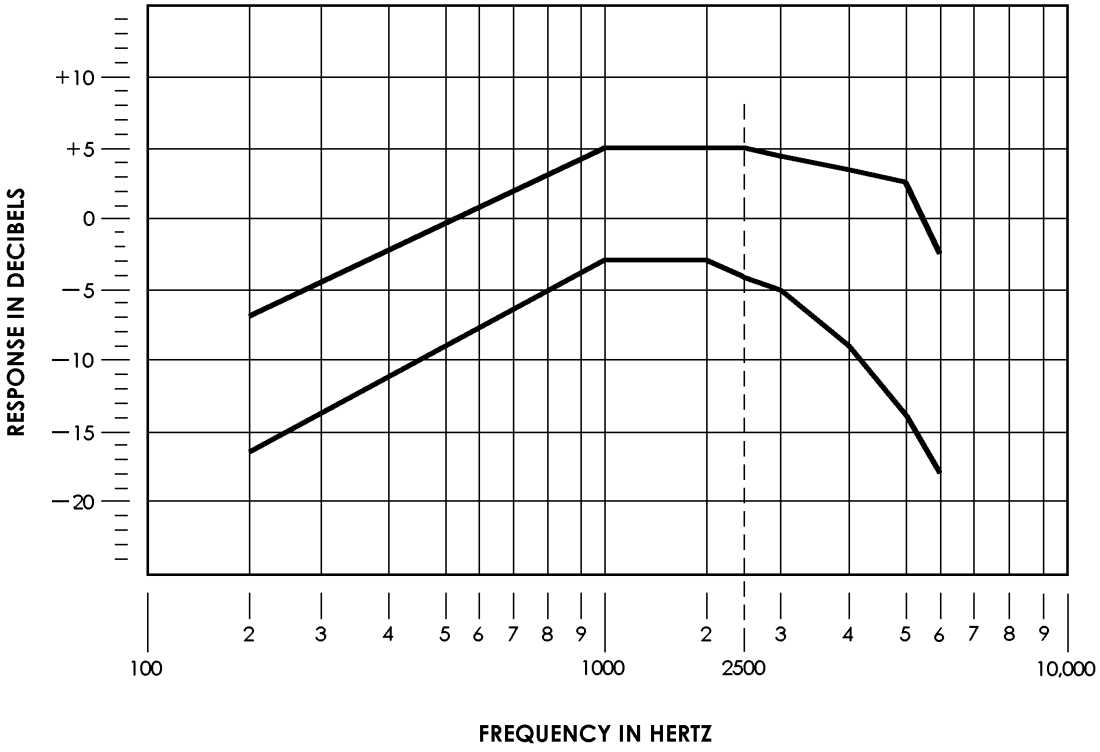
FIGURE 1. Microphone element M-101/AIC – Continued



Frequency points	200 Hz	300 Hz	360 Hz	1,000 Hz	4,000 Hz	5,000 Hz	6,000 Hz
Upper limits (dB)	-2.0	2.0	(2.21) 1/	(3.40) 1/	5.0	5.0	-2.0
Lower limits(dB)	-12.5	(-8.01) 1/	-6.0	-2.0	-2.0	(-9.17) 1/	-15.0

1/ dB limits between key break point are calculated.

FIGURE 2. Frequency response envelope for microphone element M-101/AIC ground level.



Frequency points	200 Hz	1,000 Hz	2,000 Hz	2,500 Hz	3,000 Hz	4,000 Hz	5,000 Hz	6,000 Hz
Upper limits (dB)	-7.0	5.0	5.0	5.0	(4.34) 1/	(3.31) 1/	2.50	-2.50
Lower limits(dB)	-16.50	-3.0	-3.0	(-4.10) 1/	-5.0	-9.0	(-13.96) 1/	-18.0

1/ dB limits between key break point are calculated.

FIGURE 3. Frequency response at 25,000 feet.

REQUIREMENTS:

Component parts: See figure 1.

Weight: 16 grams, maximum.

Performance:

Sensitivity at ground level: 36.90 dB - 42.92 dB (re 1 μV) or 69.98 μV – 139.63 μV with a SPL input of 28 dynes/cm^2 at 1 kHz, when tested with the microphone sound port 0.187 inch ± 0.015 inch (4.75 mm ± .38 mm) from, and coaxial with, the opening of the artificial voice.

Sensitivity at a simulated altitude: Sensitivity shall be equal to but not more than 8 dB of the ground level sensitivity when tested at 25,000 feet.

Frequency response at ground level and at 25,000 feet: The envelope shall be as shown on figures 2 and 3, when tested with the microphone sound port 0.187 inch ± 0.015 inch (4.75 mm ± .38 mm) from, and coaxial with, the opening of the artificial voice. The frequency response range of the element shall be 200 Hz to 6,000 Hz.

The response curves generated shall be on the same scale as shown in figures 2 and 3. The response curve shall not exceed the upper and lower limit curves of the stationary Frequency Response Envelope, within the frequency ranges identified in the charts (see figures 2 and 3).

Impedance: 4.0 ohms to 6.0 ohms. The electrical impedance at any frequency over the range of 200 Hz to 6,000 Hz shall not deviate from the 1,000 Hz impedance by more than 20 percent.

Resistive load: 5.0 ohms.

Intended use: Microphone element M-101/AIC is a noise canceling dynamic moving coil microphone element designed for use on a headband type headset at low altitudes or for use in an oxygen mask or pressure-type oxygen helmet, at altitudes where the use of an oxygen helmet is required. The microphone element is intended to provide communication under the noise conditions encountered in military aircraft.

The microphone assembly shall be tested in accordance with the tests listed in table I.

TABLE I. Parameter applicability.

Inspection	Qualification	Group "A"	Group "B"	Group "C"
Group I				
Visual and mechanical	X	X		
inspection	X	X		
Sensitivity at ground level	X			
Sensitivity at altitude	X	X		
Frequency response at ground	X			
level	X	X		
Frequency response at altitude	X			
Impedance	X			
Noise cancellation	X			
characteristic	X			
Effect of external magnetic field	X	X		
Stray magnetic field	X			
Linearity	X		X	
Talk-out	X		X	
Dielectric withstanding voltage	X		X	
Signal-to-noise				
Distortion				
Interchangeability				
Group II				
Thermal shock	X			X
Humidity	X			X
Drop	X			X
Pressure equalization	X			X
Explosive decompression	X			X
Salt fog	X			X
Group III				
Vibration	X			X
Bounce	X			X
Altitude	X			X
Moisture barrier seal	X			X
Immersion	N/A			
Group IV				
Fungus	X			
Group V				
Gun blast	N/A			

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - EC
Air Force – 11
DLA - CC

Review activities:
Army - AR, AT, AV, CR4
Navy – AS, OS
Air Force – 99

Preparing activity:
DLA - CC

(Project 5965-0351-003)